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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

April Meetings. The regular monthly meeting of the American Geographical Society was held on April 24 at the Engineering Societies' Building, 29 West Thirty-ninth Street. President Greenough presided. He submitted the names of 197 candidates for Fellowship, each of whom had been approved by the Council, and they were confirmed as Fellows of the Society. Thereupon Mr. Le Roy Jeffers delivered a lecture entitled ''Mountaineering in North America.'' Mr. Jeffers exhibited a large number of views of the most famous mountains, waterfalls, and other scenic features of British Columbia and the West. An inter-monthly meeting was held on April 10, an account of which follows immediately below.

Presentation of the Cullum Geographical Medal to Major-General George W. Goethals. At an inter-monthly meeting of the Society on April 10, at the Engineering Societies' Building, 29 West Thirty-ninth Street, Major-General George W. Goethals was presented with the Cullum Geographical Medal.

President Greenough presided, and in presenting the medal spoke as follows:

''Ladies and Gentlemen, Fellows of the Society:

''It is my agreeable duty, as your representative, to ask the acceptance by our distinguished guest of an enduring memorial of appreciation of his work and genius in the completion of the great undertaking with which his name is irrevocably associated. Honors and praise have deservedly been showered upon him from many quarters, and other speakers have described, far better than I could, the physical difficulties which he has surmounted and which are familiar to you all. I desire in my few remarks to suggest some reflections on what I may term the moral triumph achieved by him in the conduct of his arduous task.

''The conception of an inter-oceanic canal took shape speedily after the Spanish occupation. In the year 1551 the Marquis de Gomara, historian of the Indies, after describing his plan for piercing the Isthmus, memorialized the King as follows: 'There are mountains, but there are also hands; give me the resolve and the task will be accomplished. If determination is not lacking, means will not fail.' Three and one-half centuries had to elapse before these brave words were crystallized into action, but they breathe the spirit which found embodiment in the chief who was destined finally to conduct the enterprise to success, and whom we honor tonight. Never, I believe, has a finer example been offered of fortitude under discouragement, of devotion to duty, and of abnegation of self in directing great affairs. It seemed at times as if both nature and man were in league to enhance his difficulties, but unflinchingly and calmly he devised plans to overcome the forces of the one, and to defeat the designs of the other. Duty and service formed his sole incitement and guide in every action, and it was his rare gift to be able to animate others with his own enthusiasm in the midst of obstacles.

''I do not strain the comparison if I recall that the fame of the Father of his Country rests no less upon his power to inspire the failing ardor of his countrymen than on his ability to lead them in conflict; and that thought of his own advantage was ever forgotten in his devotion to his country. It is a pleasing thought that the attributes of Washington have found a place in the character of his compatriot and namesake, George Washington Goethals, to whom I address your felicitations.

''And now, General, on behalf of the American Geographical Society, I beg to present to you their gold medal, which seeks to record in the brief terms of its inscription your great achievement and its relation to the science to which the Society is devoted. It reads:

TO GEORGE W. GOETHALS
BUILDER OF THE PANAMA CANAL
HE FULFILLED THE ANCIENT DREAM OF GOMARA
OF A HIGHWAY BETWEEN THE ATLANTIC AND THE PACIFIC
AND THEREBY TRANSFORMED FOREVER
THE GEOGRAPHIC RELATIONS OF THE COMMERCIAL WORLD

''May I be permitted, in presenting this emblem, to add that it is accompanied by the personal good wishes of our three thousand Fellows for your long-continued health and prosperity?''

In accepting the medal General Goethals spoke of his high appreciation of the award no less on behalf of the great force of men who helped build the Panama Canal than for himself. He wished to share with all of them an honor which he accepted as their spokesman and representative. There followed a most interesting account of the construction of the canal, fully illustrated with lantern views, which showed the various methods of excavation; the special problems, with particular reference to the great slide; the dams and lock system and the mode of operation; and the new terminal facilities, ports, wharves, dry dock, and breakwaters.

Sir Ernest Shackleton's Visit to New York. The main outline of the story of Lieutenant Sir Ernest Shackleton's last expedition to the Antarctic is familiar to readers of the *Review* (Return of Shackleton from Weddell Sea, Vol. 2, 1916, pp. 54-57, with map; Rescue of the Marooned Men of Shackleton's Weddell Sea Party, *ibid.*, pp. 231-232; Rescue of the Marooned Men of Shackleton's Ross Sea Party, Vol. 3, 1917, pp. 245-246). By those who had the privilege of hearing him in Carnegie Hall on Sunday evening, April 29, no detail of that story will ever be forgotten. Sir Ernest modestly called the account of the expedition a story of failure because the original objects were not achieved; but so long as the race breeds men of courage, so long as loyalty to his pledged word is part of a gentleman's creed, this story of ''failure'' will stir men's hearts and kindle their deepest enthusiasm. Shackleton told his men, whom he left marooned on Elephant Island, that he would return, and he simply did that, neither stopping at the end of a third failure nor deceiving himself by the specious thought that the men must have died before the fourth relief ship could sail. All were safe; and their faith in his return will be immortalized in history by the command of Frank Wild, who on each clear day ordered: ''Boys, roll up your sleeping bags; the 'boss' may come at any moment.''

In this, of all times the most perilous for that civilization which it has cost the race such tragic effort to build, it is well to hold before us this latest and in many respects greatest epic of polar exploration and to take heart of the thought that the man who did not count the cost of keeping faith with comrades represents a nation allied with us in rescuing civilization from great peril.

The lecture was given under the joint auspices of the American Geographical Society and the American Museum of Natural History. It was repeated before the Geographical Society of Philadelphia on Tuesday, May 1; at Aeolian Hall, New York, Wednesday, May 2; and had been given a few days previously before the Geographic Society of Chicago. Sir Ernest also made a few informal remarks at the Explorers' Club luncheon at which he was the guest of honor on Sunday, April 29, at the Hotel Majestic, New York. He returns to England presently, where, after two weeks' rest, he will enter the war service. Twenty of his men are already at the front, where one of them was killed on his first day in the trenches.

NORTH AMERICA

The Survey of the Air over North America. A strong movement is under way to develop a survey of the air over North America and the adjoining waters. The objects are to observe and chart the irregularities of air currents, to establish aërological stations for observers not only at the earth's surface but also aloft to ten thousand feet or more, and thereby to safeguard aircraft and the lives of aviators and extend their limits of service both in time of peace and in time of war.

The National Advisory Committee for Aëronautics is fostering the movement and has the support of the Aëro Club of America and many men of high scientific standing. An Aërological Survey might become co-ordinate with the Hydrographic Office, the Coast and Geodetic Survey, and the Geological Survey. The need for better aëronautical charts is apparent to every one who is interested in the progress of flying. The *Review* will shortly publish a series of articles on the construction and use of such charts, with special reference to the development of a standard set of symbols. A bibliography of the subject and a number of illustrations will accompany one of the articles. They will deal with the two chief kinds of aëronautical charts: those designed as mere route charts for long cross-country flights and those on a large scale and showing much detail, which are constructed for intensive work like that required on a fighting front or in a densely populated region where frequent stops, as in mail or passenger service, may be necessary.

The Eradication of Malaria in the United States as a Preparedness Measure. The geography of disease has been a subject of frequent comment in the *Review*. Ward has emphasized this in ''The Hygiene of the Zones'' (Chapter 7 of his ''Climate Considered Especially in Its Relation to Man,'' New York, 1908, pp. 178-219). A recent paper of exceptional value was read by F. L. Hoffman at the tenth annual meeting of the Southern Medical Association, November 14, 1916, and is entitled ''A Plea and a Plan for the Eradication of Malaria Throughout the Western Hemisphere'' (65 pp.; Prudential Insurance Co., Newark, N. J.). Not the least among its good qualities are its copious references to the literature of land drainage, the climatic elements of environments, and well-digested statistics regarding mortality and sanitation.

It is shown that malaria ranks first among the endemic diseases of the South in causing social and economic loss and in its widespread and insidious character. In warm climates especially it produces in the aggregate an enormous amount of sickness and mortality. And though it has been largely stamped out in the North as a result of the general settlement of the land and the drainage of swamps and pools, there are still left important centers of development, as in the Valley of California, where in some otherwise promising localities there is a retarded growth on account of its prevalence. This is a deplorable economic waste in the light of the needs of our rapidly increasing population.

Expeditions and commissions for the study of malaria have been sent to various geographical regions: it suffices to mention the Ross expedition to Sierra Leone, the Taylor expedition to Nigeria, and the investigation of the sanitary conditions at Pará, the Panama Canal Zone, India, Dutch East Indies, and British Malaya. Thoroughgoing these have been and productive of conclusions now requiring transformation into government statutes and works.

In the United States the soil surveys and topographic surveys already made promote field studies of malarial conditions and should be extended more rapidly than in the past to the end that governmental control of primary sanitation laws may become effective. Parts of the South have been mapped in an adequate way, but meteorological conditions require further investigation in spite of their secondary importance. O'Connell's studies deserve special consideration as suggesting unrealized relations between malaria and meteorology.

The proposal is to improve rural sanitation; to construct rural post roads; to carry on demonstration work; to promote drainage plans and stimulate activity in educating the people to a knowledge of the habits of the *Anopheles* mosquito and the proper use of quinine in prevention and cure; to search for natural enemies of mosquitoes; and to accomplish these results by the widest publicity through industrial and corporate organizations, international and national congresses, state and county governments, etc.

The most intensely malarial sections of the United States today are the Yazoo Delta counties of Mississippi, the river counties of Tennessee, southeastern Missouri, Arkansas, and Louisiana. From seven river counties of Missouri the average mortality rate for the period 1911-1914 inclusive was 168.8 per 100,000 population, for Dunkin County as high as 296.7. This is higher than the rate for the corresponding period in Trinidad and Tobago (218.9) and almost as high as that for Venezuela (305.6).

Progress in reducing the prevalence of the disease is most satisfactory. The malarial death rate at Havana has been reduced from 49.0 per 100,000 in 1900-1904 to 2.4 per 100,000 in 1910-1914, or 95.1 per cent! In the Danish West Indies (now the American Virgin Islands) the rate has been lowered 88.8 per cent, in Rio Janeiro, 86.5 per cent, and in Colombo, Ceylon, 84.9 per cent.

The Probable Growing Season for Crops in the United States. William G. Reed, of the Office of Farm Management, U. S. Department of Agriculture, has been investigating the length of the growing season in the United States and has presented a number of new facts which are of practical use to farmers (The Probable Growing Season, *Monthly Weather Rev.*, Sept. 1916). The average number of days without frost is not all that the intelligent farmer needs or wishes to know. He needs information as to the chances of his having a longer or a shorter growing season. Then he can decide whether the risk of his losing his crop is worth taking or not. Mr. Reed has constructed three maps which are an interesting and important extension of our practical knowledge of frost conditions in relation to agriculture (*ibid.*, Pls. 122-124; see also Figs. 3 and 4 in the same author's article on ''Weather as a Business Risk in Farming'' in the July, 1916, *Geogr. Rev.*). The first map shows the number of days without killing frost for which the chance is about 4 in 5, the chance being computed in the same manner as insurance risks are determined. If losses from frost occur more frequently than once in five years, success in the crops is not likely. A second map shows the dates on which the chance of killing frost falls to 1 in 10, or when the chance that there will be no later spring frost becomes 9 in 10. A third map shows the probable end of the growing season. The dates are those when the chance of safety becomes less than 9 in 10. R. DEC. WARD.

A Highway along the Pacific Coast. A proposal has recently been made to connect the harbors on the Pacific by means of a highway built along the coast and for which the name of ''Balboa Highway'' has been suggested (F. W. Harris in *Engineering News* for March 15, 1917, p. 433). The harbors on the Pacific are isolated, especially in the northern sections, because the foothills of the Coast Range usually reach the sea. Evidence as to the need for intercoastal communication, which affords an interesting example of geographic response, is afforded by the practice, followed since pioneer days along the Oregon coast, of running stage lines on the beaches, according to a schedule based on the nautical almanac. The growing importance in recent years of many of these harbors, including Gray's Harbor and Willapa Bay in Washington, Coos Bay in Oregon, and Humboldt Bay in California, strengthens the need of a road which will enable communication to be easily maintained between them.

The construction of this road will mark the beginning of the industrial development of the region. At convenient distances from the harbors lie forests which may be made to yield ample supplies of wood pulp. Hydro-electric power can be generated at low cost and coal is not wanting. From a military standpoint also the road will be of great value, especially in the section between Coos Bay and Eureka, on Humboldt Bay, between which points intercourse along the coast is practically barred by the Siskiyou Mountains.

Anegada, A Near Neighbor of Our New Insular Possessions. Anegada is the northernmost of the Virgin Islands; of ancient notoriety, today it is almost forgotten. At intervals of weeks some boat may arrive from Tortola or Virgin Gorda, and occasionally the inhabitants carry vegetables to market in St. Thomas. The island resources are self-sufficing. The coral-derived soil, irrigated from the curious natural water holes called ''wells,'' is wonderfully productive; cattle thrive on the island flats, and the sea adds to the generous food supply. There is little to disturb the lotus-eating existence of the Anegadan; his sole diversion, indeed, is ''a vessel on the reef.'' Even today this may prove a profitable excitement, but it cannot compare in this respect with the good old times when the harbor of St. Thomas was filled with shipping and before the long arm of the law was wielded so effectively from Tortola. Then the settlers ''derived more money from shipwrecks than ever they obtained by growing provision crops and cotton, or by rearing cattle, which, together with the wood of the turpentine tree, they took to St. Thomas and other ports for sale.'' In the business of ''wrecking'' Anegada, of course, was not unique; it has been an important economic phase in many another minor West Indian island. But this outermost of the islands, the first sighted on the old route from Spain, enjoyed peculiar advantages from the wrecker's point of view. It is distinguished by its dangerous tides and currents. In two years alone 63 vessels are reported to have been wrecked on its winding reefs. The name of the island—Anegada, the Drowned—suggests another physical peculiarity. With the exception of an elevation of sixty feet in the southeast the island lies so low as to be literally submerged during heavy gales. Circumstances thus combine to make it singularly well adapted for the other nefarious phase of sea traffic that preceded permanent settlement and the age of the wrecker. Of all the buccaneer haunts in the West Indies none is more famous than Anegada, the first and last stronghold of these sea-rovers (Patrick Vaux: A Forgotten West Indian Island, *United Empire*, February, 1917).

EUROPE

A Geographical Interpretation of Berlin. Under the title ''Berlin and Its Region'' Dr. H. J. Fleure recently presented before the Cities Committee of the (British) Sociological Society a statement of certain fundamental geographical influences operating in the evolution of Berlin as a great national capital (13 pp.; Sherratt & Hughes, London, 1916).

The growth of the German center is in sharp contrast with that of Paris. Paris, city on a hill ''around which has blown for centuries the wind of the spirit,'' has long been the focus of widespread influences, especially from the sunny lands of the Mediterranean (compare the note on ''The Geographical Basis of the French Spirit'' in the February *Review*, p. 150). Berlin on the contrary is the center of a late-developed, naturally unattractive plain, poor alike in material and spiritual inheritance. The forested swamp of the North German Plain fell without the sphere of Roman influence, bounded effectively by the line of the Rhine-Danube, a line roughly coincident with the southern limits of a frozen January. Even in the Middle Ages the Rhine constituted a definite obstacle to progress eastwards, though a certain penetration into the ''tangled valleys'' of the Southern Highlands quickened the life of the several small independent states growing up therein. But, while these small valley centers, making use of the metal and timber resources at their command, were carrying on a profitable trade with the Hanse towns of the Baltic and North Sea shores, the plain itself remained merely a zone of transit. Population concentrated on the seaboard and along the ''fall line'' which marks the topographic break between the old Southern Highlands and the Northern Plain. The characteristic effect of such a line in the concentration of human occupation is shown on the accompanying map of the German fall-line cities. Of them Leipzig may be taken as a type. Today, under the transformations necessitated by a modern market, it still maintains the great fair that originated there through the favorable location at a meeting point of routes. In medieval days perhaps the greatest interest of the plain gathered about the eastern frontier between Elbe and Oder, held by the Teutonic knights as an outpost of Christendom. When in the seventeenth century the sea trade of the Baltic declined and the commercial bonds across the plain weakened and Europe was engulfed in the Thirty Years' War this military character of the plain occupation was strengthened.

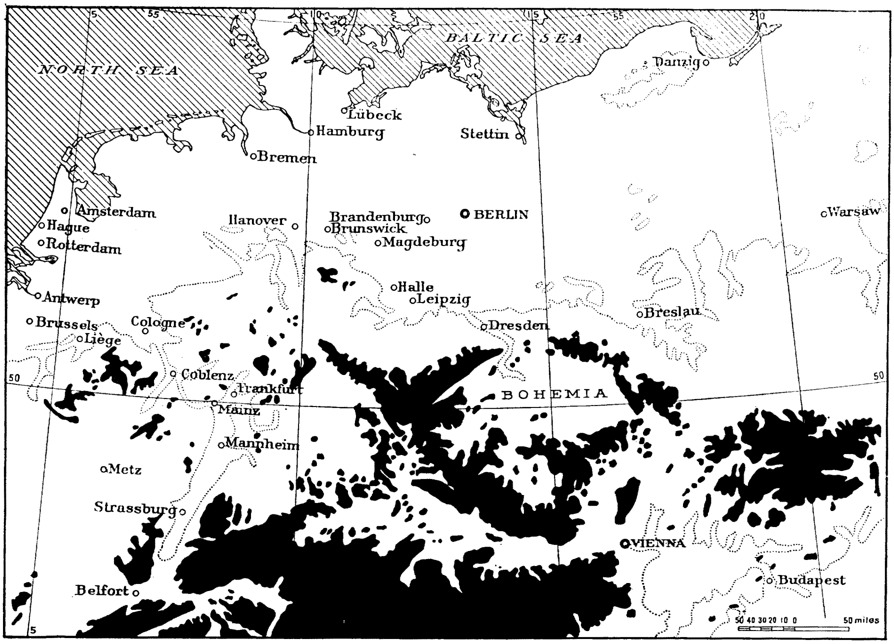

FIG. 1—Outline map showing the relation of cities to the German "fall-line." Scale, 1:10,000,000. (Redrawn from H. J. Fleure's "Berlin and Its Region.")

By "fall-line" is meant the boundary between the uplands and the plain, approximately indicated by the 600-foot contour, here shown as a dotted line. The areas over 1,500 feet high are shown in black.

Now also began the development of east-and-west communications, a movement helped by the east-west grain of the surface, dependent on the lines of morainic hills. From Holland at the western edge of the plain came important influences working in a variety of ways, from the introduction of personal factors—notably the alliance of the Electorate of Brandenburg with the House of Orange—to Dutch help in the construction of canals. To the latter is directly due the rise of Berlin: the city is essentially a route center of the plain. As a focus of national life, however, Berlin is seriously handicapped by its extreme poverty of that inheritance from the past wherein the French capital is so rich. Such roots of national unity are indeed much more abundant in the fall-line cities, but certain physical circumstances have militated against the establishment of a fall-line capital. Amongst them may be noted the existence of the ''unassimilated'' Bohemian block that has diverted to itself and to the Vienna basin much of the interest of the South German towns. Again, the seaboard fails to provide a focus such as the English plain possesses in London. Hamburg at one extremity has developed rather under state influence from Berlin than by a natural evolution from fisheries and coastwise trade. National control centering in the plain was thus confronted with the problem of building up a national unity upon scant bases. This it has been sought to accomplish by a policy of spiritual isolation. Political barriers have been emphasized and the new national conscience has been cut apart from the humanizing influences of exterior contact, a policy easily carried out in a region where state control has been essential to material success.

Switzerland, and Europe's System of Navigable Inland Waterways. Because of its mountain location, Switzerland appears at first sight obliged to lie outside of the system of European inland water routes. But this isolation is costly, and the stimulus to reduce the cost of foreign merchandise has led to plans for the expansion, mainly toward the Mediterranean, of Switzerland's existing water connection with the sea. In an article entitled ''La position géographique de la Suisse: Étude de géographie politique'' (*Ann. de Géogr.*, Nov. 15, 1916, pp. 413-429) Professor Henri Hauser of the University of Dijon develops this theme and shows how dependent economically Switzerland is on the Rhine route: a ton of wheat routed through Rotterdam to Bern costs only 21.80 francs, whereas by way of Genoa it costs 25.10 francs.

Among these plans is the proposal to connect the Rhone with the Rhine by way of Swiss territory—the existing canal between the two river systems, from Strassburg via the Belfort depression to the Doubs River, lying wholly within German and French jurisdiction—and to make of Geneva a collecting center of merchandise coming from Mediterranean harbors. The city has the example of Basel, which has become the head of the whole Rhine channel from Rotterdam up. The route of the proposed waterway is as follows: up the Rhine to the mouth of the Aar (this would involve removal of the obstructions to navigation above Basel, between Rheinfelden and the Aar), up the Aar, through the Lakes of Biel and Neuchatel, and via the disused Canal d'Entreroche into the Lake of Geneva. Proceeding from Geneva on French territory, the ''Perte du Rhône'' below that city, where the river partly disappears under limestone rocks, would have to be circumvented; then the whole course of the Rhone would be available unobstructed to the Mediterranean. Here, on the Berre lagoon, which has recently been connected by a tunneled canal with Marseilles (see note in *Geogr. Rev.*, Vol. 1, 1916, p. 459) a harbor might be established especially for Swiss import trade, somewhat as Cette is now, due to the circumstances created by the war, fulfilling that function.

A radical change in the economic life of the country would follow the creation of this waterway. At present Switzerland is dependent on Westphalian coal. The rapid development of its industries has outgrown the supply of power from hydraulic plants. Likewise for the iron which it needs Switzerland has to rely largely on Germany. These facts explain why the Teutonic empires have exerted such influence on Switzerland during the war. Indeed, one-third of all Swiss imports are derived from Germany while one-fifth of its exports are sent to that country. The construction of a waterway with an outlet to the Mediterranean, offsetting the present tendency to gravitate toward the North Sea, would therefore strengthen Switzerland's political stability as a European nation, while it would enable its citizens to buy more cheaply from abroad.

Use of a Relief Model in Warfare. The value of relief models as a means of visualizing topography and geographical relations in general has recently been demonstrated on the western front. A press despatch from London dated April 15 (*New York Times*, April 16) relates that, in preparation for the recent offensive in the neighborhood of Lens, a British officer had prepared, from aërial photographs and all available information, a large-scale plaster model of Vimy Ridge which indicated every natural feature, the trenches, railways, defenses, roads and streams, and even the mine craters. The familiarity with the terrain gained from a study of the model was of immense advantage in the subsequent successful assault on this important key.

Climate and the Fall of Rome. Modern progress in science is constantly providing new and more logical interpretations of the decline of the Roman Empire. One of these, by Professor Simkhovitch, giving soil impoverishment as the cause, was noticed in the November *Review* (Vol. 2, p. 376). A recent article by Dr. Ellsworth Huntington (Climatic Change and Agricultural Exhaustion as Elements in the Fall of Rome, *Harvard Univ. Quart. Journ. of Economics*, February, 1917) takes up climate as one of the factors to which the decline of Roman power was due. Referring to previous studies as outlined in his ''Civilization and Climate,'' Dr. Huntington believes that the climatic record indicated by the thickness of the rings in the big trees of California is equally valid for Italy. Modern research has at any rate established the correlation of atmospheric pressure or temperature in widely separated parts of the earth, and it seems safe to assume that the growth of sequoias is an index of the conditions affecting rainfall in far-away Italy for any considerable period of time.

Applying in a generalized manner the curve of the big trees to Italy, Dr. Huntington finds that from 450 to 250 B. C. the climate of that country was favorable to human activity, but that a change for the worse ensued in the next half century and persisted during the second century, though not without indications of improvement. Thence to the beginning of the third century of our era a period of ups and downs intervened, after which aridity set in which lasted until the fall of the empire. This was followed by better conditions, but the seventh and eighth centuries seem to have been very unfavorable. In comparing these periods of climatic fluctuations with the agricultural changes outlined by Professor Simkhovitch, Dr. Huntington finds that the agricultural decline coincides with arid periods.

Turning to another factor, malaria is considered. The biological decline of the Romans has been attributed by observers of standing to the prevalence of this disease. Dr. Huntington shows that stagnant pools become numerous with increasing aridity. As long as precipitation is sufficiently abundant, springs flow freely in their channels. With slackened activity due to shortage of water, they become loaded with mud and gravel, their channels are either filled or directed into new courses, and shallow bodies of still water are created.

Dr. Huntington is thus of the opinion that the wane of Rome's power is not attributable alone to agricultural exhaustion, as Professor Simkhovitch suggests. He regards the decline of agriculture as one of the manifestations of climatic changes, malaria and its biological effects being considered as other results of the same general cause.

AFRICA

Physical Geography of Spanish Morocco. A summary of the results of the expedition to Spanish Morocco sent out in 1913 by the Real Sociedad Española de Historia Natural and the Ministerio de Estado is given by Professor J. Dantin Cereceda in a recent article (La Zone Espagnole du Maroc, *Annal. de Géogr.,* Sept. 15, 1916). Only the Yebala (French spelling, Djebala) district, extending from the Mediterranean to the Atlantic, of which the towns of Tetuan, Ceuta, Tangier, and Larache are the foci, and the lower valley of the Lucus, a short river draining into the Atlantic, were visited. This district forms the western part of Spanish Morocco, which is practically coextensive with the Rif Range, a chain which forms the direct continuation across the Strait of Gibraltar of the Betic Cordillera, of which the Sierra Nevada is the most conspicuous member. (The two ranges form a letter *U* lying on its right side, with the Strait of Gibraltar on the middle of its curved portion.) The Rif Range is distinct from the Atlas ranges, from which it is separated by the depression of the Wadi Sebu, opening funnel-shaped to the Atlantic. The lower valley of the Lucus, above mentioned, is a similar depression on a smaller scale, lying to the north of the Sebu.

The climate of the district, and consequently the vegetation, is of the Mediterranean type. Three plant associations may be distinguished: the evergreen forest, in which the wild olive is the characteristic tree; the *maquis,* or dense thicket growth, a xerophytic association which best reflects the climate of the region and is characterized by the dwarf palm; and a steppe region, surprisingly rich in flowering forms in springtime, when it is frequented by the Moors with their flocks.

The most fertile part of Spanish Morocco is the zone which lies between the coastal dunes on the Atlantic and the plateaus forming the southwestern border of the Rif Range. Here occur the *tirs,* or black soils, akin to the famous *chernoziom* of southern Russia. Professor Dantin Cereceda departs from the usually accepted beliefs regarding the origin of these soils and considers them as having been formed during an earlier, moister climate (see also the note on "The Southwesternmost Black Soils of Europe" in the December, 1916, *Review,* pp. 468-469, where reference is made to the author's paper on this topic).

The Arable Lands of Egypt and Their Utilization. The great reclamation works in the Nile Valley have increased the extent of arable land in Egypt by 26 per cent between 1898 and 1913, namely, to a total of about 13,000 square miles (33,402 square kilometers), according to a Cairo letter to *L'Économiste Français* for January 8, 1913. Almost a third of this additional surface (11,218 square kilometers) has not yet been cultivated, chiefly because the fellah farmers and the large land owners have in recent years applied themselves to intensive farming, a procedure largely made possible because of the greater productivity of the soil resulting from the reclamation works. Whereas in 1898 34.5 per cent of the farm lands had been made to yield more than one crop per year, in 1913 this figure had risen to 46 per cent. Egypt's reserves of soil are therefore abundant and they bear promise of wealth in store for its inhabitants.

According to statistics in the same article, future development will occur mainly in Lower Egypt, where vast stretches of marshes have been reclaimed. In Upper Egypt the increase in arable land, although relatively greater, does not amount to so large an area. On the other hand the lands yielding more than one yearly crop have nearly doubled in Upper Egypt, whereas in Lower Egypt they have increased by only one-fifth. This is due to the introduction of perennial irrigation in place of the former annual operation at the time of the Nile flood.

Development of a Coalfield in Southern Nigeria. The survey of the mineral resources of Southern Nigeria undertaken by the Imperial Institute led to the discovery in 1909 of the Udi-Okwoga coalfield (*Bull. Imperial Inst.,* Vol. 14, 1916, pp. 369-378). The coalfield, named from villages at its extreme ends, is situated on the threshold plateau of Upper Guinea, which lies back of the coastal lowland, and occupies some 1,800 square miles northeast of Asaba on the lower Niger, where extensive beds of lignite are also known to occur. The coal is of Cretaceous age and of sub-bituminous quality. In the hands of the Public Works Department development has made good progress since the completion of the railroad from Port Harcourt to Udi, the southern limit of the district (see note on "New Port and Railroad for Nigeria" in the *Bull. Amer. Geogr. Soc.,* Vol. 46, 1914, p. 205). Exploitation is facilitated by a local labor supply above the average for a primitive country. On the other hand the local timber supply is already almost exhausted, and imports now come from Lagos.

ASIA

Typhoon Precipitation in China. A study of the distribution of precipitation in China during the typhoons of the summer of 1911 has been made by Co-Ching Chu, a graduate student of meteorology in Harvard University (*Monthly Weather Rev.,* August, 1916). The most important conclusions reached are (1) that the distribution of rainfall in tropical storms is uniform when compared with that in extra-tropical cyclones; (2) that the heaviest rainfall usually occurs on that part of the coast where the storm passes from sea to land; (3) that the velocity of the typhoons here investigated did not decrease as they passed from sea to land; and (4) that the heaviest precipitation usually occurred along the track. In cases, however, where the storm went far inland, this rule did not hold. In this respect, the behavior of these tropical cyclones resembled that of extra-tropical cyclones. William G. Reed, in his study of the cyclonic distribution of rainfall in the United States (*Monthly Weather Rev.,* Vol. 39, 1911, pp. 1609-1615), found that the area of heaviest precipitation usually occurred on the side nearest a considerable source of moisture. R. DEC. WARD.

Proposed American Railway in Southern China. The construction with American funds of a railway is projected to tap the rich Kwangsi province in southern China, according to information in the November, 1916, issue of the *Far Eastern Review* (pp. 217-224). The line will extend from Hengchow in Hunan province to the seaport of Yamchow on the Gulf of Tonkin. At Hengchow it will connect with the great north-and-south trunk line through China when it is completed south to Canton beyond its present stretch, Pekin-Hankow.

At present rivers provide the only lines of travel in Kwangsi. The province is rich in natural resources. Its fertile valleys have the reputation of being the granary of Kwangtung. A part of the agricultural products, consisting of cereals, indigo, groundnuts, tobacco, cotton, aniseed, camphor and olives, are transported down the waterways to Canton. Its mineral wealth is extensive, both precious and base metals being mined by the natives. Being relatively sparsely populated—its 5,140,000 people are distributed over 77,200 square miles—the province needs railroads badly.

When the line is completed, the present network of Chinese railways will have been extended to the southwestern districts of the country. This part of China has been administered with difficulty from Pekin owing to the lack of communications. The railroad will develop new life. It will furthermore be a connecting link between the French lines of Indo-China and the Chinese railways. As contemplated, the road will benefit Canton greatly.

POLAR REGIONS

Coal Mining Farthest North. Coal mining carried on in Spitzbergen, in nearly 80° north latitude, claims the distinction of being the most northerly of the world's organized industries (*Commerce Repts.*, Sept. 8, 1915, and Jan. 7 and Oct. 23, 1916). Its development is receiving much attention, particularly from Norwegians, although American capital has also been extensively invested. The deposits, even in the present state of incomplete investigation, are known to be vast. It is said that the two principal beds outcropping in the fiords between Advent Bay and Green Harbor are estimated to contain over a billion tons. The coal is easily worked by lateral shafts driven into the hillsides a short distance from the shore. *Commerce Reports* for October 23, 1916, states that the Norwegian Spitzbergen syndicate had shipped more than 15,000 tons of coal to Norway since mid-August. The shipments go to Tromsö, 400 miles distant from Advent Bay.

In many respects the industry is conducted under unique conditions. No pumping is necessary in the mines, for temperatures are always below freezing point. Dust is absent, and consequently no danger of explosions is to be apprehended. Shipment is limited to the summer months, but compensation is found in the continuous light of the summer days.

Politically affairs are no less singular. Spitzbergen truly is a No Man's Land. The convention of European Powers that met in Christiania in 1914 to discuss the status of the islands adjourned without conclusion, and further progress is of course closed pending the duration of the war. So the country remains an inhabited land without government and without laws.

GEOGRAPHICAL NEWS

First Annual Meeting of the Ecological Society of America. The Ecological Society of America, whose organization was noticed in these pages (*Geogr. Rev.*, Vol. 1, 1916, p. 224), held its first annual meeting at Barnard College, New York, on December 27, 28, and 29, 1916, under the presidency of Dr. V. E. Shelford of the University of Illinois. The scientific program comprised the reading of forty-two papers and the delivery of two symposiums. The activities of the society are partially centered in investigative committees, three of which were appointed during 1916. The Committee on Climatic Conditions, of which Dr. Burton E. Livingston is chairman, held a symposium embodying the suggestions of its members as to fruitful fields and methods of investigation of climatic conditions as related to the activities of organisms. The papers read in this symposium were as follows:

Ellsworth Huntington: Climatic Optima for Human Activities; A. D. Hopkins: Latitude, Longitude, and Altitude as Factors Affecting Insect Life; D. T. MacDougal: Physiological Aspects of the Influence of Light on Organisms; V. E. Shelford: Evaporation as a Climatic Factor Affecting Animals; B. E. Livingston: The Use of Organisms as Instruments for Comparing Effective Environmental Conditions.

The Committee on Soil Temperature, of which Dr. Forrest Shreve is chairman, also organized a symposium on the importance of soil temperature in various lines of ecological work. The papers read in this were as follows: Raphael Zon: Soil Temperatures as a Factor in Forestry; Alfred E. Cameron: Relation of Soil Insects to Climatic Conditions; George P. Burns: The Effect of Natural and Artificial Shade on Soil Temperatures at Different Depths; C. C. Hamilton: The Importance of Soil Temperatures to Insects, As Indicated by Their Behavior; Forrest Shreve: The Projected Soil-Temperature Survey of the United States and Canada.

The Committee on Fresh-water Fish and Fisheries, of which Prof. A. S. Pearse is chairman, was appointed late in the year and is still under organization.

Three field trips were carried out by the society during 1916, one to the Dismal Swamp of Virginia, under the leadership of Prof. J. W. Harshberger; one to the dunes of Lake Michigan and the adjacent region, under the lead of Dr. H. C. Cowles and Dr. V. E. Shelford; and one to the Cuyamaca Mountains and Imperial Valley, California, under the guidance of Mr. Frank Stephens.

The officers elected at New York for the ensuing year are: President, Dr. Ellsworth Huntington; Vice-President, Dr. J. W. Harshberger; Secretary-Treasurer, Dr. Forrest Shreve.

PERSONAL

MR. WILLIAM H. BABCOCK of Washington, D. C., a student of the history of early cartography, from whom a contribution on the problem of Atlantis is printed in the present number, was in April elected president of the Anthropological Society of Washington.

DR. W. H. EMIG of the University of Pittsburgh gave a lecture on "The Plant

Geography of the Arbuckle Mountains, Oklahoma,'' before the Botanical Society of Western Pennsylvania on February 14.

DR. CHARLES R. FETTKE of the Carnegie Institute of Technology gave an illustrated lecture on ''Porto Rico: Its Geology, Natural Resources, and Inhabitants'' before the section of biology and geology of the Pittsburgh Academy of Science and Art on March 20.

MISS ADELAIDE R. HASSE, chief of the economics division of the New York Public Library, will give a course of thirty lectures on United States public documents at the summer session of Columbia University from July 9 to August 17. The lectures of geographical interest deal with the following subjects: History of the U. S. Weather Service, July 10; M. F. Maury, July 12; History of the U. S. Coast and Geodetic Survey, July 13; D. D. Owen, July 17; U. S. Geological Surveys, July 18; Francis A. Walker, August 2; N. S. Shaler, August 7; U. S. Road Service, August 8; U. S. Interstate Commerce Commission, August 13.

The plan of the course is to acquaint the student with the personality and accomplishment of some of our great pioneers in economic and scientific government research and with the origin and development of the government bureaus in which these pioneers labored. Miss Hasse is best known to geographers by her helpful bibliography of government exploring expeditions (The Reports of Explorations Printed in the Documents of the United States Government, 90 pp., Office of Superintendent of Documents, Washington, 1899).

PROFESSOR A. J. HENRY of the U. S. Weather Bureau gave a lecture before the Geographic Society of Chicago on April 27 on ''Rivers and Floods of the United States.''

DR. ELLSWORTH HUNTINGTON returns to Yale University at the beginning of the next academic year to occupy the position of Research Associate in Geography, ''research associate'' being a new professorial rank established at Yale which is to be occupied by men who do little or no teaching. He intends to reside in New Haven and to give possibly one graduate course.

DR. O. E. JENNINGS of the Carnegie Museum and University of Pittsburgh gave an illustrated lecture on the ''Botany of the State of Washington'' before the section of biology and geology of the Pittsburgh Academy of Science and Art on February 6. Dr. Jennings is giving a course on ecology and plant geography at the University of Pittsburgh to a class of graduate students.

MR. A. K. LOBECK of Columbia University read a paper before the New York Academy of Sciences on April 16 entitled ''The Physiography of Porto Rico.''